SUMMARY,
CONCLUSION AND
RECOMMENDATION
CHAPTER V
SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

From this study, it could be understood that, the selected blood biochemical parameters are changed due to single session of different training based on the research hypothesis. Trainings have been divided into three, and they are distributed for the various groups like Circuit Training Group (CTG), Interval Training Group (ITG), Weight Training Group (WTG) and a group without any assigned type of training is the Controlled Group (CG). The subjects selected for the concerned study are well-trained athletes and they have been participated in minimum state level competitions in Karnataka State and their age ranges are between 16 to 18 years. The selection of athletes was done based on their representation in competition and age was determined based on the register book of the concerned Pre-University College. The blood specimen was collected in very hygienic room before the commencement of training and after the completion of training. The training schedule was prepared by the training expert from Udupi and approved by the experts from the same field. Every Monday has been chosen for training and blood sample collections, as Sunday would be a resting day that will bring the blood parameters of athletes into normal from previous week heavy physical training. Monday 6 15 am was fixed for blood sample collection and Post blood sample collection has been collected at 8 30 am. The Chief Medical Lab Technician was in charge of collecting the specimens along with his assistant.

Blood Sample was collected from the vein from elbow and for this purpose disposable syringe was used. The present results are positively supporting the research hypothesis and almost all the blood parameters have significantly changed from the normal value. The normal value of individual athlete’s blood parameter is considered for the study as the normal value of every blood parameter differs from individual to individual. But medically, the normal value is fixed in fixed norms. Sometimes, the normal value of blood parameter of an athlete maybe, more or lesser than, the scientific normal value. For the analysis between and within the group, Analysis of Covariance (ANACOVA) has been applied where the final means were adjusted for differences in the initial means, and the adjusted means were tested for significance. Whenever
the adjusted post-test means were found significant, the Scheffe’s Post-Hoc test was administered to find out the paired mean’s significant difference. The significance of the means of the obtained test results was tested at 0.05 level of confidence and it was considered for the present study.

5.2 Conclusion

The selected blood parameters are given below and it has been concluded according to the variable. The adjusted mean differences on hemoglobin between circuit training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 1.78, 1.92 and 1.78 respectively was greater than the CI value 0.16. Hence, there exists significant difference in case of hemoglobin. So the hypothesis was accepted at 0.05 level of confidence. The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 0.14, 0.00 and 0.14 respectively was lesser than the CI value 0.16. Hence, there exists no significant difference between training groups.

The adjusted means on total WBC count and difference between the means of the circuit training, interval training, weight training and control groups. The mean differences of circuit training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 1175.63, 922.50 and 949.25 respectively was greater than the CI value 764.55. Hence, there exists significant difference. The hypothesis was accepted at 0.05 level of confidence. The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 253.13, 226.38 and 26.75 respectively, that was lesser than the CI value 764.55. Hence there exists no significant difference.

The adjusted means on platelets and difference between the means of the circuit training, interval training, weight training and control groups. The mean differences of circuit training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 175.63, 150.25 and 175.63 respectively was greater than the CI value 764.55. Hence, there exists significant difference.
weight training group (WTG) and controlled group (CG) were 0.76, 0.81 and 0.75 respectively which was greater than the CI value 0.29. Hence, there exists significant difference. The hypothesis was accepted at 0.05 level of confidence.

The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 0.05, 0.01 and 0.06 respectively which was lesser than the CI value 0.29. Hence, there exists no significant difference.

The adjusted mean differences on RBC between circuit training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 0.56, 0.56 and 0.59 respectively, greater than the CI value 0.20. Hence, there exists significant difference. The hypothesis was accepted at 0.05 level of confidence.

The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 0.00, 0.03 and 0.03 respectively lesser than the CI value 0.20. Hence, there exists no significant difference between training groups.

The adjusted means on random blood sugar and difference between the means of the circuit training, interval training, weight training and control groups. The mean differences of circuit training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 7.39, 10.41 and 9.72 respectively was greater than the CI value 6.72. Hence, there exists significant difference. The hypothesis was accepted at 0.05 level of confidence. The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 3.02, 2.33 and 0.69 respectively which was lesser than the CI value 6.72. Hence, there exists no significant difference.

In case of serum bilirubin, it was insignificant within the group and between the groups, hence the hypothesis is accepted as per the research hypothesis.
The adjusted mean difference on Serum Protein between circuit training group (CTG) and controlled group (CG) was 0.27 greater than the CI value 0.23. Hence, there exists significant difference. The hypothesis was accepted at 0.05 level of confidence. The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 0.15, 0.14, 0.01, 0.12 and 0.13 respectively which was lesser than the CI value 0.23. Hence, there exists no significant difference between training groups.

The adjusted means on serum albumin and difference between the means of the circuit training, interval training, weight training and control groups. The mean differences of circuit training group (CTG) and controlled group (CG) was 0.33 greater than the CI value 0.26. Hence, there exists significant difference. The hypothesis was accepted at 0.05 level of confidence. The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 0.09, 0.15, 0.06, 0.24 and 0.18 respectively which was lesser than the CI value 0.26. Hence, there exists no significant difference.

The adjusted mean differences on Serum Cholesterol between circuit training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 7.24, 6.92 and 7.04 respectively which was greater than the CI value 6.34. Hence, there exists significant difference. The hypothesis was accepted at 0.05 level of confidence. The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 0.32, 0.20 and 0.12 respectively which is lesser than the CI value 6.34. Hence, there exists no significant difference between training groups.
The adjusted means on serum HDL cholesterol of circuit training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 4.25, 4.67 and 4.01 respectively which was greater than the CI value 2.53. Hence, there exists significant difference. The hypothesis was accepted at 0.05 level of confidence. The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 0.42, 0.66 and 0.24 respectively which was lesser than the CI value 2.53. Hence, there exists no significant difference.

The adjusted mean differences on Serum LDL between circuit training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 9.25, 8.50 and 9.15 respectively and it was greater than the CI value 7.96. Hence, there exists significant difference. The hypothesis was accepted at 0.05 level of confidence. The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 0.75, 0.10 and 0.65 respectively which was lesser than the CI value 7.96. Hence, there exists no significant difference.

The adjusted mean differences on Serum Sodium between circuit training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 4.23, 3.25 and 3.46 respectively and it was greater than the CI value 2.90. Hence, there exists significant difference. The hypothesis was accepted at 0.05 level of confidence. The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 0.98, 0.77 and 0.21 respectively, that was lesser than the CI value 2.90. Hence, there exists no significant difference between training groups.

The adjusted means on serum potassium and difference between the means of the circuit training, interval training, weight training and control groups. The mean differences of circuit
training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 0.64, 0.67 and 0.65 respectively was greater than the CI value 0.16 Hence, there exists significant difference. Hypothesis was accepted at 0.05 level of confidence. The mean difference between circuit training group (CTG) and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 0.03, 0.01 and 0.029 respectively which was lesser than the CI value 0.16 Hence, there exists no significant difference.

The adjusted mean differences on Creatine Kinase between circuit training group (CTG) and controlled group (CG), interval training group (ITG) and controlled group (CG), weight training group (WTG) and controlled group (CG) were 17.73, 18.41 and 19.57 respectively and it was greater than the CI value 16.99 Hence, there exists significant difference. Hypothesis was accepted at 0.05 level of confidence. The mean difference between CTG and interval training group (ITG), circuit training group (CTG) and weight training group (WTG), interval training group (ITG) and weight training group (WTG) were 0.68, 1.84 and 1.16 respectively and it was lesser than the CI value 16.99 Hence, there exists no significant difference between training groups.

5.3 Recommendation

- The study recommends including the blood checkup along with the medical certificate for the selection trials of various sports hostel and academy.
- Monitoring the blood normal value of an athlete will give an idea of athlete’s endurance capacity based on Hemoglobin and RBC counts.
- Monitor the blood normal value once in a month for better future and performance.
- The study recommends finding blood biochemical values of athlete to enhance an athlete’s performance level especially in the endurance type activity and strength related events.
- Similar study can be conducted on different age category.
- Similar study can be done with women to assess their Blood Biochemical Changes.
• Similar study can be done with elementary level students for assigning them in various events in sports
• Similar study can be associated with the senior citizens to enhance their fitness levels
• This study further reveals an idea on the blood biochemical changes taking place in athletes